50X1-HUM

CLASSIFICATION CONFIDENTIAL

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

COUNTRY	USSR	DATE OF INFORMATION	1953
SUBJECT	Scientific - Medicine, proteins, biochemistry, organization		
HOW PUBLISHED	Semiweekly newspaper	DATE DIST.	9 June 1954
WHERE PUBLISHED	Moscow	NO. OF PAGES	4
DATE PUBLISHED	27 Nov 1953		
LANGUAGE	Russian	SUPPLEMENT TO REPORT NO.	

THIS IS UNEVALUATED INFORMATION

SOURCE Meditsinskiy Rabotnik, Vol XVI, No 95 (1215), p 2, columns 1-6

ACTIVITIES OF INSTITUTE OF BIOLOGICAL AND MEDICAL CHEMISTRY, ACADEMY OF MEDICAL SCIENCES USSR

Prof V. Orekhovich
Corr Mem, Acad Med Sci USSR,
Dir of Inst of Biol and Med Chem

The Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, was founded in 1945. Considerable funds were assigned for organization of the institute and for equipment and training of personnel. As the activities of the institute developed, it continued to receive unflagging support. During recent years the laboratories of the institute were equipped with the most modern types of apparatus.

The personnel of the institute devotes considerable attention to the study of the history of Russian biochemistry. The priorities of Soviet scientists have been proven in the creation of contemporary theories in the field of proteins, the solution of the problem of enzymatic synthesis of protein, and the investigation of the biochemical factors of inflammation.

The experimental and theoretical investigations carried out at the institute helped in many cases to expose reactionary and mistaken views held by bourgeois biochemists and to establish that some bourgeois periodicals published erroneous data on the nutritive value of proteins and the use of proteins in the diet.

The work of the US scientists Rittenberg, Borsuk, Anfinsen, and others on problems of the biological synthesis of proteins in the organism and outside the organism has been criticised.

50X1-HUM

CLASSIFICATION CONFIDENTIAL

STATE		NAVY		NSRB		DISTRIBUTION							
ARMY		AIR		FBI									

The erroneous concepts of G. M. Bosh'yan, S. S. Perov, N. I. Gavrilov, and other USSR scientists applied to the solution of problems of biology and medicine and in carrying out experimental work have been criticized at conferences of the institute, at meetings of scientific societies, and in print.

The ways and results of applying the newest methods of investigation for the study of protein metabolism and of the structure of protein molecules have been discussed extensively at the institute. In the course of the discussions carried on, the necessity of checking experimentally a number of assumptions was demonstrated. Furthermore, the erroneous nature of some assumptions, particularly in regard to the existence of living protein molecules, has been demonstrated.

During recent years the personnel of the institute has done a large amount of work on the investigation of proteins. A particularly important aspect of this problem pertained to the structure of proteins and to their conversion in the organism. We succeeded in isolating, in a crystalline form, representatives of a new group of connective tissue proteins which are commonly encountered in nature. The study of the chemical composition and the properties of these proteins demonstrated that chemically they are closely related to collagens. Further investigations permitted the conclusion that the newly discovered proteins are predecessors of collagens in the organism. They have been named procollagens for this reason. It could be shown that procollagens in the process of their transformation into collagens pass through several stages, and that there are intermediate protein substances in the organism which occupy a position between procollagens and collagens. It was also established that inhibition of the processes of healing of wounds and of the regeneration of tissues in old age, in scurvy, and under other conditions is connected with the inhibition of the synthesis of procollagens and of the transition of certain intermediate forms into other forms. These data undoubtedly are of practical importance for medicine.

Many foreign scientists, particularly US scientists, for a long time defended antiquated ideas on the nature of procollagens. The US scientists have carried out a whole series of investigations, on the basis of which they attempted to refute the data obtained by USSR biochemists. However, the bourgeois scientists were forced to retreat under the impact of factual data. At the Second International Congress of Biochemists, held in Paris, the research done by Soviet scientists on the subject of procollagens received general recognition. The US delegates did not even attempt to present their mistaken point of view.

The research done on amino-acid metabolism at our institute has yielded very interesting results, to date. The work done at the Laboratory of Biochemistry of Amino Acids and at the Laboratory of Organic Chemistry permitted us to formulate a theory which not only explains the manifold functions of vitamin B_6 in processes of metabolism but also predicts the mechanism and direction of transformations that products of nitrogen metabolism undergo. These results furnish exceptional opportunities for disclosing the nature of many processes of protein metabolism and of their disturbance under pathological conditions. Although hundreds of foreign scientists are engaged in the investigation of the role of Vitamin B_6, they could not create a general theory of the activity of this substance which constitutes the active group of many enzymes that are active in the body.

The importance of the production of amino acids for research purposes and for practical uses in medicine, particularly for parenteral feeding of patients, is well known. In a number of cases a mixture of amino acids is introduced directly into the blood or injected subcutaneously. Such mixtures of amino acids or individual amino acids may possess therapeutic properties.

For instance, glycine is used for the treatment of muscular dystrophies; cysteine as an antidote in treating the effects of poisoning with some substances and as a protective agent against the harmful effects of X-rays; methionine for the treatment of burns, anemias, and afflictions of the liver; and histidine for the treatment of gastric ulcers.

Amino acids are also of great importance in combating conditions which result from insufficient protein nutrition, for the preparation of bacterial nutrient media, etc. Realizing the importance of the organization of the production of amino acids, the personnel of the institute has developed methods for synthesizing all amino acids which enter into the composition of proteins. In collaboration with the personnel of one of the chemical plants, the production of amino acids is being organized.

A group of workers at the institute found a method for the chemical synthesis of levomycetin, which proved to be an effective therapeutic agent. The new tasks assigned to science by the 19th congress of the CPSU have helped our institute to raise the quality and quantity of the research being done. The decisions of the 19th party congress have also demonstrated the necessity of criticizing more extensively the reactionary ideas in science.

In order to solve many problems of contemporary medicine, one must investigate other biochemical problems in addition to those pertaining to proteins. One must study the metabolism of carbohydrates, lipides, and phosphorus compounds; the chemistry and biochemistry of hormones; the chemistry and biochemistry of vitamins; problems of immunochemistry; and problems in other subdivisions of biochemistry. It is obvious that not all the problems can be investigated at any one institute. It is essential to insure that work on these problems be conducted on an extensive scale at other scientific-research medical institutes besides the Institute of Biological and Medical Chemistry.

Unfortunately these subdivisions of biochemistry are not being investigated at all or are being investigated inadequately. This is explained by the fact that at a number of institutions (the institutes of nutrition, endocrinology and blood transfusion, the laboratories of biochemistry at clinics, and the chairs of medical institutes) modern technical equipment is lacking. In some cases the required number of qualified workers is also not available.

One must admit that the Institute of Biological and Medical Chemistry, which has concentrated all of its efforts on work in the field of proteins, has not devoted adequate attention to organizing research at other scientific institutions in the fields indicated.

The Ministry of Public Health USSR and the Presidium of the Academy of Medical Sciences USSR underestimate the importance of biochemistry as a leading discipline in contemporary medicine.

There is still no periodical in which one can systematically publish work in the field of medical chemistry. At institutes of advanced training for physicians there are no chairs of biochemistry, although it is quite evident that physicians must be familiar with the developments in this specialized field.

The Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, which has the most advanced technical equipment and the best qualified personnel, has the best facilities for preparing a great number of aspirants. However the Ministry of Public Health USSR has practically stopped the preparation of young specialists at the institute through aspirantships. It is enough to say that only one aspirantship unit has been confirmed at the institute for 1953-54.

[redacted] 50X1-HUM

The personnel of the institute will have to participate much more extensively in raising the qualifications of workers at biochemical institutions, in propagadizing more extensively the newest methods of investigation, and in contributing more extensively to the introduction of new methods.

It is necessary to shorten the period elapsing before the results of research done at the institute are introduced into practice. In this important job the aid of the Presidium of the Academy of Medical Sciences USSR and of the Ministry of Public Health USSR must be extended to the personnel of the institute.

The extent to which biochemistry is underestimated by the Presidium of the Academy of Medical Sciences may be seen from the fact that at the Medico-Biological Department of the academy there are more than 30 active members and corresponding members who are specialists in the fields of physiology and pathophysiology, more than 20 active members and corresponding members who are morphologists, and only 7 biochemists.

The scientific work in the field of biochemistry is conducted within the system of the Ministry of Public Health USSR and of the Academy of Medical Sciences USSR by two corresponding members and one active member. Three additional biochemists, who are active members of the Academy of Medical Sciences USSR, are at the same time members of the Academy of Sciences USSR and do not conduct any studies of medical problems. This weak representation of biochemists in the Academy of Medical Sciences obviously does not correspond to the significance which must be ascribed to biochemistry as a science.

The leaders of medical science must change their attitude toward biochemistry and take steps to raise the quality and quantity of work in a number of subdivisions of this important discipline. By using contemporary technical achievements, sharply increasing the scope of investigations, and improving the training of biochemists, one may expect to solve in the near future a number of problems which are important for contemporary medicine and biology.

[redacted] 50X1-HUM